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RACK TO ACCOMMODATE PAINT CANS

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0,143,145.

Description

The invention relates to a rack and paint cans to be accommodated in the rack.

According to the generic clause of Claim 1, the rack consists of lateral vertical supports and shelves extending between the supports at various vertical intervals and of a drive means having a drive motor and transmission at each shelf to a series of first drive elements at one side of each shelf, each of which is configured to engage with a second drive element on a paint can, and suspensions for one paint can each on the shelves. Such a rack is disclosed in European Patent EP-A-0,065,498.

According to the generic clause of independent Claim 10, the paint can to be accommodated in the rack comprises a lid in which an agitator shaft is mounted, bearing an agitator on the inside of the lid and a second drive element on the outside of the lid. The lid is provided with a closure element for a pour opening and an opening lever actuatable in opening direction against the force of a spring for the closure element, cf e.g. U.S. A 3,162,338.

In a known rack of this kind the shelves are of sheet steel and arranged on the supports at various distances from each other according to the dimensions of the various paint cans. The drive is transmitted by V-belts in the shelves, through which drive shafts extend downward, at the ends of which first drive elements in the form of plates are swingably arranged, extending downward on opposed sides

of the drive shaft. The drive shafts and the first drive elements are arranged at a distance from each other determined by the diameter of the cans to be placed on the next lower shelf. Each can is closed with a removable lid on which a pour opening is closable by means of a spring-loaded closure element and in which an agitator shaft is rotatably mounted. At the outer end of the agitator shaft, a second drive element is arranged in the form of a fork with erect ends, adapted to the first drive element. Upon actuation of the drive means, the plates grasp the erect ends of the fork and carry them along so that the agitator shaft is set in rotation. This rotation is required to ensure homogeneity of the paint contained in the can even over an extended period of time.

In the above mentioned EP A 0,065,498, a rack rotatable about a central axis is disclosed in which, on vertical supports of a central member, shelves are arranged, extending at various vertical distances. The shelves, with the exception of the lowermost, each support a plurality of drive elements on their under side in the form of spindles in drive connection with each other and with a driving means. The spindles act on agitators set in the individual paint can. Each shelf is provided on top with a plurality of suspensions in the form of elastic clamps to locate and retain the individual cans, which are lined up with spindles on the under side of the overlying shelf.

In the known rack, the cans are inadequately secured on the shelves by the spring clamps against tilting moments

under the action of the agitator drive. Besides, the drive elements effecting the drive connection between the V-belts in the shelves and the agitators inside the cans are freely accessible during operation, a considerable disadvantage to the operating dependability of this rack.

Accordingly, the object of the invention consists in creating a rack for paint cans and cans appropriate thereto, of the kind initially mentioned, offering a high level of functional and operating dependability.

According to the invention, this object is accomplished in that the suspensions at the side of the shelf from which the first drive elements project form generally U-shaped guide housings for one can each, each of them enclosing the first drive element, and in that the U-shaped guide housing contains a catch member extending on a side away from the base between the side walls of the U-shaped guide housing.

The enclosure of the drive elements in the guide housing renders the drive connection and its movable parts inaccessible to interventions from without. At the same time, the guide housing in combination with the catch member and a catch element on the can in question achieves the great advantage that the cans being placed in the rack are guided and the drive elements of the drive connection are thereby always properly aligned with each other and secured in the position in which the first and second drive elements are in engagement.

Advantageously, between side walls of the guide housing there extends a protective wall opposed to its base, and the first drive element is enclosed between the base and the protective wall.

Regarding the paint can according to the invention, the aforementioned object is accomplished in that a generally U-shaped guide element projecting upward from the outside of the lid is provided, and a catch means is arranged on the opening lever, and in that the base of the U-shaped guide housing is arranged at the lid and that the legs of the U-shaped guide element form guide members intended to cooperate with the guide housing.

Preferably the catch device is arranged on the side of the opening lever opposed to the lid and may form a catch element projecting upward from the opening lever, that cooperates with the catch member on the guide housing, to secure the can in its position aligned with the drive.

By such a configuration of the can, an areal and hence, especially effective guidance is achieved even for cans of large volume. The preferred consideration of the catch element on the opening lever makes possible the engagement in operating position against the spring of the opening lever, so that the can can be taken out of its operating position only by actuation of the opening lever, and consequently not unintentionally.

An embodiment of the invention by way of example is represented in the illustration and will be illustrated and

described in detail below in terms of the reference numerals. In the drawing,

Fig. 1 shows a front view of the rack according to the invention, with some paint cans;

Fig. 2 shows a top view of a guide housing on the under side of the shelf in the rack according to Fig. 1;

Fig. 3 shows a front view of the catch suspension according to Fig. 2;

Fig. 4 shows a side view of a paint can with lid in the rack of Fig. 1; and

Fig. 5 shows a back view of the can with lid according to Fig. 4.

In the front view of the rack according to Fig. 1, we see lateral supports 1 and 2, connected at the bottom by a bottom shelf 3 and at the top by a transverse member 4. The bottom shelf 3 may optionally extend still farther forward, and the shelves 1, 2 may be provided if desired with side parts extending forward correspondingly; over this portion of the bottom shelf, a table may be set up. The transverse member 4 may be provided with a lamp to illuminate the rack. The members 1 and 2, the bottom shelf 3 and the transverse member 4 may consist of any suitable material and are preferably made of steel sheet.

Between the supports 1 and 2, a plurality of shelves 5 extend, arranged at vertical distances from each other that are determined by the heights of the paint cans 41 in question. On the under side of the shelves 5 are located guide housings 20 arranged at horizontal distances from

each other, adapted to the diameters of the cans 41 in question. On the under sides of the shelves 5 are guide housings 20 arranged at horizontal distances from each other, adapted to the diameters of the cans 41 in question. In this way, rows of cans 41 of different sizes can be stood on the shelves 5 of the rack. Similarly, additional shelves to retain paint cans 41 may also be arranged under the table, if present. In Fig. 1, we also see underlays 6 arranged on the shelves 5, slidably arranged on the shelves 5 and enabling any smaller cans 41 to be placed on any shelves 5.

To the support 1, a control box 10 is fixed for a main drive motor in the form of an electric motor; over the height of the support 1, there extends a main drive shaft in drive connection with the electric motor. At the level of the shelves 5, drive sheaves are arranged on the main drive shaft to transmit the drive to first drive elements 11 by means of V-belts.

The generally U-shaped guide housings 20 each consist of two side walls 22 arranged parallel to each other and at a distance from each other in such manner that they enclose the first drive element 11 between them. The side walls 22 are connected by a base 23 of semicircular configuration. From the free ends of the side walls 22, bent insertion elements 24 extend laterally, continuing so far downward (cf. Fig. 3) that they effect a positive guidance of the cans 41. From the base 23, a guide plate 26 having a guide slot 27 extends. This guide

slot 27 is so arranged and configured that it accommodates the agitator shaft 42 projecting from the lid 40 of a can 41 when a can 41 is thrust into the guide housing 20. On the side of the first drive element 11 opposed to the base 23, a protective wall 28 passes between the side walls 22, so that the first drive element 11 is enclosed between the base 23 and the protective walls 28. Between the guide plate 28 and the side walls 22 of the guide housing 20, a slot having a stop 29 is configured, with which the guide element described below and located on the outside of the lid of the can is in contact, when the can occupies its operating position.

Near the insertion elements 24 a fastening part 30 extends, that connects the edges of the opposed side walls 22 to each other and serves for attachment of the U-shaped guide housing 20 to the shelf 5.

Further, between the side walls 22 of the U-shaped guide housing 20 there extends a catch member 31 beneath the fastening part 30. This catch member 31 may be formed by a cylindrical rod or pin and be so arranged and configured that it cooperates with a catch element correspondingly configured and arranged on the lid 40 of a can 41 as described below. The catch member 31 may also be provided with a projection directed to one side, or be formed by a lug or a bolt secured with a nut. In the embodiment shown by way of example, the fastening part 30 forms a web on the under side of which the catch member 31 is attached in the form of an expansion sleeve.

The U-shaped guide housings 20 are arranged on the shelves 5 in such manner that there is only a short lateral distance between the insertion elements 24 of neighboring guide housings 20. In this way, the insertion elements 24 ensure correct insertion of the can 41 in the respective guide housing 20, the correct positioning being assured by the stops 29 and the catch member 31.

In Figs. 4 and 5, a lid 40 and a can 41 are represented in different views. In this lid 40, an agitator shaft 42 is rotatably mounted in conventional manner, bearing an agitator not shown on the inside of the lid 40 and a second drive member 44 on the outside of the lid 40. The lid 40 is provided with a pour opening 45 closed by a closure element 48 actuatable by a spring-loaded opening lever 47. On the lid 40, a generally U-shaped guide element 45 is arranged, projecting upward from its outside, the base of which is fixed to the lid 40 and whose legs 49 each form guide members 50 offset laterally at the ends. The guide members 50 on the lid 40 are so configured and arranged that they will rest in contact with the side walls 22 and the stops 29 of the U-shaped guide housings 20. From the opening lever 47, a catch element 51 projects upward and forms an incline 52 on the side towards the second drive element 44. The catch element 51 is so dimensioned and arranged that it cooperates with the catch element 31 on the guide housing 20. Finally, the lid 40 is provided with conventionally configured conical surfaces

and clamping elements 53 sealing closure of the cans 41 and with a handle 54.

To place the can 41 in the rack, the can 41 is so thrust into the guide housing 20 by means of the handle that the guide element 50 will rest in contact with the side walls 22. The can 41 is then positioned on the shelf 5 in question, without at first making a drive connection with the agitator shaft 42. For that purpose, the catch element 51 must first be moved past the catch member 31 by its incline 52, which is possible by briefly opening the spring-loaded opening lever 47 against the force of its spring. The can 41 is then thrust so far into the guide housing 20 that the front edges of the guide member 50 rest against the can 41 at the stops 29 of the guide housing 20. The first and second drive elements 11 and 44 are thereby brought into drive connection. This connection cannot be released again without more, since the catch element 51 and the catch element 31 prevent it. In this way, therefore, a secure and exactly reproducible positioning of the can 41 on the shelf 5 is established. The drive connection may be released again by opening the opening lever 47 against the force of its spring, whereby the can 41 can be drawn out of the guide housing 20 and the catch element 51 taken out of engagement with the catch member 31.

In the rack, the drive elements 11, 44 are located in installed condition of the can 41 between the side

walls 22 of the U-shaped guide housing 20 and the guide members 50 of the guide element 48 on the lid 40 of the can 41. In addition, the drive elements 11, 44 are enclosed between the base 23 and the protective wall 28 of the U-shaped guide housing 20, arranged close to the shelf 5. The drive elements are thereby protected against intervention from without, and an especially high dependability is achieved, since the rotating drive elements 11 and 44 are practically inaccessible during operation.

(Claims in German, English, French)